

SYSTEM AND METHOD FOR CONTROLLING WELDING PARAMETERS
IN WELDING-BASED DEPOSITION PROCESSES

ABSTRACT OF THE DISCLOSURE

5 According to one embodiment of the invention, a method for controlling
operational weld parameters of a welding-based deposition process includes
generating a solid model representing a three-dimensional part on a computer,
electronically slicing the solid model into a plurality of electronic two-dimensional
layers, identifying a path of material deposition based on the electronic two-
10 dimensional layers, the path comprising a plurality of deposition points, and
determining a geometrical factor for each deposition point. The geometrical factor is
defined by a ratio of an actual volume of material around each deposition point to a
theoretical volume of material around each deposition point. The method further
includes automatically adjusting, during material deposition for a respective
15 deposition point, one or more parameters of the welding-based deposition process
based on the geometrical factor for the respective deposition point.